Amendments to the Claims:

This listing of claims will replace all prior versions and listings of the claims in the above-captioned patent application:

Listing of Claims:

Claim 1. (Currently Amended) A motor control system for driving a motor with a PWM control using an electric power converter ~~such as a three-phase inverter,~~ comprising:

a junction temperature calculating device calculating a junction temperature (Tj) of a switching element of the electric power converter including a temperature sensor that detects a temperature (Td) at the switching element, wherein the junction temperature of the switching element is determined from a first ~~the~~ equation:

$$Tj = Td+(Rh \times Lo),$$

wherein Rh denotes a thermal resistance between the temperature sensor and the switching element, and Lo is a power loss determined from a second ~~the~~ equation:

$$Lo = Lo1 + Lo2,$$

wherein Lo1 denotes a switching loss resulting from the switching element switching on or off, and Lo2 denotes a current loss resulting from an electric current flowing through the switching element; and

a junction temperature reducing element comparing the junction temperature Tj with a preset temperature limit and performing junction temperature reduction processing by reducing the switching loss (Lo1) to make the junction temperature equal to or less than the temperature limit when the junction temperature exceeds the temperature limit.

Claim 2. (Withdrawn) A motor control system for driving a motor with a PWM control using an electric power converter such as a three-phase inverter, comprising:

loss calculating means for calculating a loss of a switching element of the electric power converter; and

loss reducing means for comparing the loss calculated by the loss calculating means with a preset loss limit and for performing loss reduction processing to make the loss equal to or less than the loss limit when the loss exceeds the loss limit.

Claim 3. (Currently Amended) A motor control system for driving a motor with a PWM control using an electric power converter ~~such as a three-phase inverter~~, comprising:

a temperature sensor detecting a temperature (Td) of a switching element of the electric power converter;

a junction temperature calculating device calculating a junction temperature (Tj) of the switching element of the electric power converter when the temperature (Td) detected by the temperature sensor is between a maximum temperature limit of the switching element and a predetermined temperature which is lower than the maximum temperature limit, wherein the element is determined from a first ~~the~~ equation:

$$Tj = Td+(Rh \times Lo),$$

wherein Rh denotes a thermal resistance between the temperature sensor and the switching element, and Lo is a power loss determined from a second ~~the~~ equation:

$$Lo = Lo1 + Lo2,$$

wherein Lo1 denotes a switching loss resulting from the switching element switching on or off, and Lo2 denotes a current loss resulting from an electric current flowing through the switching element;

a junction temperature reducing element comparing the junction temperature Tj with a preset temperature limit when the temperature Td detected by the temperature sensor is between the maximum temperature limit of the switching element and the predetermined temperature which is lower than the maximum temperature limit and performing junction temperature reduction processing by reducing the switching loss (Lo1) when the junction temperature exceeds the temperature limit;

loss calculating means for calculating the power loss (Lo) ~~of~~ at the switching element of the electric power converter when the temperature detected by the temperature detecting means is equal to or less than the predetermined temperature; and

loss reducing means for comparing the loss (Lo) calculated by the loss calculating means with a preset loss limit when the temperature detected by the temperature detecting means is equal to or less than the predetermined temperature and for performing loss reduction processing to make the loss equal to or less than the loss limit when the loss exceeds the loss limit.

Claim 4. (Currently Amended) A motor control system for driving a motor with a PWM control using an electric power converter ~~such as a three-phase inverter~~, comprising:

loss calculating means for calculating a power loss (Lo) of a switching element of the electric power converter, wherein Lo is determined from a first ~~the~~ equation:

$$Lo = Lo1 + Lo2,$$

wherein Lo1 denotes a switching loss resulting from the switching element switching on or off, and Lo2 denotes a current loss resulting from an electric current flowing through the switching element;

a junction temperature calculating device calculating a junction temperature of the switching element of the electric power converter including a temperature sensor that detects a temperature Td at the switching element, wherein the junction temperature of the switching element is determined from a second ~~the~~ equation:

$$Tj = Td+(Rh \times Lo),$$

wherein Rh denotes a thermal resistance Rh between the temperature sensor and the switching element;

loss reducing means for comparing the power loss (Lo) calculated by the loss calculating means with a preset loss limit and for performing loss reduction processing to make the loss equal to or less than the loss limit when the loss exceeds the loss limit; and

a junction temperature reducing element comparing, when it is determined by said loss reducing means that the power loss (Lo) is equal to or less than the loss limit or when the loss becomes equal to or less than the loss limit by the loss reduction processing, the junction temperature (Td) with a preset temperature limit and performing junction temperature reduction processing by reducing the switching loss (Lo1) to make the junction temperature equal to or less than the temperature limit when the junction temperature exceeds the temperature limit.

Claim 5. (Currently Amended) The motor control system according to claim 1, wherein said junction temperature reducing element carries out the junction temperature reduction processing by reducing a number of switchings per unit time.

Claim 6. (Withdrawn) The motor control system according to claim 2, wherein said loss reducing means carries out the loss reduction processing by means of at least one of a method for reducing a number of switchings per unit time and a method for reducing an electric current flowing through the switching element.

Claim 7. (Original) The motor control system according to claim 5, wherein the number of switchings is reduced by lowering a frequency of a base carrier used for generation of a PWM signal.

Claim 8. (Withdrawn) The motor control system according to claim 6, wherein the number of switchings is reduced by lowering a frequency of a base carrier used for generation of a PWM signal.

Claim 9. (Canceled)

Claim 10. (Withdrawn) The motor control system according to claim 6, wherein the electric current is reduced by decreasing a duty cycle of a PWM signal.

Claim 11. (Previously Presented) The motor control system according to claim 3, wherein said junction temperature reducing element carries out the junction temperature reduction processing by reducing a number of switchings per unit.

Claim 12. (Previously Presented) The motor control system according to claim 11, wherein the number of switchings is reduced by lowering a frequency of a base carrier used for generation of a PWM signal.

Claim 13. (Canceled)

Claim 14. (Previously Presented) The motor control system according to claim 4, wherein said junction temperature reducing element carries out the junction temperature reduction processing by reducing a number of switchings per unit time.

Claim 15. (Previously Presented) The motor control system according to claim 14, wherein the number of switchings is reduced by lowering a frequency of a base carrier used for generation of a PWM signal.

Claim 16. (Canceled)

Claim 17. (Previously Presented) The motor control system according to claim 3, wherein said loss reducing means carries out the loss reduction processing by means of at least

one of reducing a number of switchings per unit time and reducing an electric current flowing through the switching element.

Claim 18. (Previously Presented) The motor control system according to claim 17, wherein the number of switchings is reduced by lowering a frequency of a base carrier used for generation of a PWM signal.

Claim 19. (Previously Presented) The motor control system according to claim 17, wherein the electric current is reduced by decreasing a duty cycle of a PWM signal.

Claim 20. (Previously Presented) The motor control system according to claim 4, wherein said loss reducing means carries out the loss reduction processing by means of at least one of reducing a number of switchings per unit time and reducing an electric current flowing through the switching element.

Claim 21. (Previously Presented) The motor control system according to claim 20, wherein the number of switchings is reduced by lowering a frequency of a base carrier used for generation of a PWM signal.

Claim 22. (Previously Presented) The motor control system according to claim 20, wherein the electric current is reduced by decreasing a duty cycle of a PWM signal.